

IN THE CLAIMS:

Please amend the claims as set forth below:

1. (Currently Amended) A distributed simulation system comprising:

two or more computer systems configured as a plurality of nodes arranged to perform a simulation of a system under test, wherein the plurality of nodes are configured to communicate simulation commands and signal values for the system under test using message packets transmitted between the plurality of nodes, and

at least one logging node of the plurality of nodes is configured to log the message packets in one or more log files on at least one non-volatile storage medium during the simulation, wherein the at least one logging node is separate from nodes targeted by the message packets.

2. (Original) The distributed simulation system as recited in claim 1 wherein, if a first node of the plurality of nodes fails during the simulation, the distributed simulation system is configured to establish a second node, and wherein a third node of the plurality of nodes is configured to read message packets that were transmitted to the first node from the log file and to transmit the message packets to the second node.

3. (Original) The distributed simulation system as recited in claim 2 wherein the distributed simulation system is configured to pause the simulation prior to transmitting the message packets to the second node, and wherein one of the plurality of nodes is configured to resume the simulation subsequent to transmitting the message packets from the log file to the second node.

4. (Original) The distributed simulation system as recited in claim 2 wherein the third node is further configured to detect message packets in the log file which were sourced by the first node, and wherein the third node is configured to verify that the second node

transmits corresponding message packets.

5. (Original) The distributed simulation system as recited in claim 2 wherein the second node is configured to load a simulator state corresponding to a simulation checkpoint, and wherein the third node is configured to transmit, to the second node, message packets that were transmitted to the first node if the message packets occurred after the simulation checkpoint, and wherein the third node is configured not to transmit, to the second node, message packets that were transmitted to the first node if the message packets occurred prior to the simulation check point.

6. (Currently Amended) The distributed simulation system as recited in claim 1 wherein the logging node logging the message packets is a hub of the distributed simulation system.

7-9. (Cancelled)

10. (Currently Amended) The distributed simulation system as recited in claim 1 wherein the logging node logging message packets is a distributed control node.

11. (Original) The distributed simulation system as recited in claim 10 wherein one of the plurality of nodes is a hub, and wherein the hub is configured to route message packets to the distributed control node even if the message packets are not otherwise destined for the distributed control node.

12. (Cancelled)

13. (Currently Amended) An apparatus comprising:

a first node configured to simulate a portion of a system under test; and

at least one computer readable medium storing instructions which, when

executed, read first message packets from a log file, wherein the first message packets were transmitted to a previous node simulating the portion in a preceding simulation, and wherein the instructions, when executed, transmit the first message packets to the first node during the simulation, and wherein the instructions, when executed, read second message packets from the log file, wherein the second message packets were sourced by the previous node simulating the portion in the preceding simulation, and wherein the instructions, when executed, verify that the first node sources corresponding message packets during the simulation.

14. (Original) The apparatus as recited in claim 13 wherein the log file contains only the first message packets and the second message packets.
15. (Original) The apparatus as recited in claim 13 wherein the log file contains each message packet transmitted in the preceding simulation.
16. (Original) The apparatus as recited in claim 15 wherein the instructions, when executed, ignore message packets other than the first message packets and the second message packets in the log file.
17. (Original) The apparatus as recited in claim 13 wherein the simulation excludes other portions of the system under test.
18. (Original) The apparatus as recited in claim 13 wherein the instructions are executed in a second node coupled to the first node.
19. (Original) The apparatus as recited in claim 13 wherein the instructions are executed by the first node.
20. (Currently Amended) A method comprising:

performing a simulation of a system under test in a plurality of nodes of a distributed simulation system, the plurality of nodes configured to communicate simulation commands and signal values for the system under test using message packets transmitted between the plurality of nodes; and

logging the message packets in one or more log files on at least one non-volatile storage medium during the simulation by at least one logging node of the plurality of nodes, wherein the at least one logging node is separate from nodes targeted by the message packets.

21. (Original) The method as recited in claim 20 further comprising:

a first node of the plurality of nodes failing during the simulation;

establishing a second node responsive to the failing; and

transmitting message packets to the second node that were transmitted to the first node, the message packets read from the log file.

22. (Original) The method as recited in claim 21 further comprising:

pausing the simulation prior to transmitting the message packets to the second node; and

resuming the simulation subsequent to transmitting the message packets from the log file to the second node.

23. (Original) The method as recited in claim 21 further comprising:

detecting message packets in the log file which were sourced by the first node;

and

verifying that the second node transmits corresponding message packets.

24. (Original) The method as recited in claim 21 further comprising the second node loading a simulator state corresponding to a simulation checkpoint, and wherein transmitting message packets to the second node comprises transmitting, to the second node, message packets that were transmitted to the first node if the message packets occurred after the simulation checkpoint, and not transmitting, to the second node, message packets that were transmitted to the first node if the message packets occurred prior to the simulation check point.

25. (Currently Amended) The method as recited in claim 20 wherein the logging node ~~logging the message packets~~ is a hub of the distributed simulation system.

26. (Cancelled)

27. (Currently Amended) The method as recited in claim 20 wherein the logging node ~~logging message packets~~ is a distributed control node.

28. (Original) The method as recited in claim 27 wherein one of the plurality of nodes is a hub, the method further comprising the hub routing message packets to the distributed control node even if the message packets are not otherwise destined for the distributed control node.

29. (Original) The method as recited in claim 20 further comprising:

reading message packets from the log file which were transmitted to a node simulating a first portion of the system under test during the simulation for transmission to a first node simulating a portion of the system under test in a second simulation including the portion and excluding other portions of

the system under test; and

transmitting the message packets to the first node.

30. (Original) The method as recited in claim 20 further comprising:

reading message packets from the log file which were transmitted by a node simulating a first portion of the system under test during the simulation, the reading performed during a second simulation including a first portion of the system under test and excluding other portions of the system under test; and

verifying the message packets are transmitted by a first node simulating the first portion in the second simulation.

31. (Currently Amended) One or more carrier computer readable media ~~comprising storing instructions which, when executed on a logging node separate from simulation nodes in a distributed simulation system~~, log, in one or more log files ~~on at least one non-volatile storage medium~~, message packets transmitted during a simulation between a plurality of simulation nodes forming ~~a distributed~~ the distributed simulation system, the message packets communicating simulation commands and signal values for a system under test being simulated in the simulation.

32. (Currently Amended) The carrier computer readable media as recited in claim 31 further comprising instructions which, when executed, establish a second node responsive to a first node of the plurality of nodes failing during the simulation, and wherein the instructions, when executed, transmit message packets to the second node that were transmitted to the first node, the message packets read from the log file.

33. (Currently Amended) The carrier computer readable media as recited in claim 32 further comprising instructions which, when executed, pause the simulation prior to

transmitting the message packets to the second node, and resume the simulation subsequent to transmitting the message packets from the log file to the second node.

34. (Currently Amended) The ~~carrier~~ computer readable media as recited in claim 32 further comprising instructions which, when executed, detect message packets in the log file which were sourced by the first node, and verify that the second node transmits corresponding message packets.

35. (Currently Amended) The ~~carrier~~ computer readable media as recited in claim 32 further comprising instructions which, when executed, load a simulator state corresponding to a simulation checkpoint into the second node, and wherein transmitting message packets to the second node comprises transmitting, to the second node, message packets that were transmitted to the first node if the message packets occurred after the simulation checkpoint, and not transmitting, to the second node, message packets that were transmitted to the first node if the message packets occurred prior to the simulation check point.

36. (Currently Amended) The ~~carrier~~ computer readable media as recited in claim 31 further comprising instructions which, when executed:

read message packets from the log file which were transmitted to a node simulating a first portion of the system under test during the simulation for transmission to a first node simulating a portion of the system under test in a second simulation including the portion and excluding other portions of the system under test; and

transmit the message packets to the first node.

37. (Currently Amended) The ~~carrier~~ computer readable media as recited in claim 31 further comprising instructions which, when executed:

read message packets from the log file which were transmitted by a node simulating a first portion of the system under test during the simulation, the reading performed during a second simulation including a first portion of the system under test and excluding other portions of the system under test; and

verify the message packets are transmitted by a first node simulating the first portion in the second simulation.